



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0699; Project Identifier AD-2020-01685-E; Amendment 39-21959; AD 2022-05-08]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain General Electric Company (GE) CF34-10E model turbofan engines. This AD was prompted by a manufacturer investigation that revealed Teflon material in the A-sump oil strainer (strainer assembly) screen after several reports of in-flight shutdowns (IFSDs) and unscheduled engine removals (UERs). This AD requires initial and repetitive visual inspections of the strainer assembly screen. As a terminating action to the initial and repetitive visual inspections, this AD requires the replacement of the stationary oil seal at the No. 1 forward bearing. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For service information identified in this final rule, contact General Electric Company, GE Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ge.com; website: <https://www.ge.com>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-

5110. It is also available at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0699.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0699; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Scott Stevenson, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7132; fax: (781) 238-7199; email: Scott.M.Stevenson@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain GE CF34-10E2A1, CF34-10E5, CF34-10E5A1, CF34-10E6, CF34-10E6A1, CF34-10E7, and CF34-10E7-B (CF34-10E) model turbofan engines. The NPRM published in the *Federal Register* on August 24, 2021 (86 FR 47264). The NPRM was prompted by a manufacturer investigation that revealed Teflon material in the strainer assembly screen after several reports of IFSDs and UERs on airplanes operating with GE CF34-10E5, CF34-10E5A1, CF34-10E6, and CF34-10E7 model turbofan engines. After investigation, the manufacturer determined that the failures were the result of Teflon oil seals disbonding from the aluminum housing when used with either high thermal stability (HTS) or high performance capability (HPC) oils. The stationary oil seal deterioration resulted from the failure of the bonding adhesive, known as EA9658, which does not have the high temperature capabilities as designed and is negatively impacted by the use of HTS or HPC oils. This deterioration results in Teflon particles collecting in the strainer assembly. The manufacturer determined that CF34-10E2A1, CF34-10E6A1, and CF34-10E7-B model turbofan engines are subject to the

same unsafe condition. In the NPRM, the FAA proposed to require initial and repetitive visual inspections of the strainer assembly screen. As a terminating action to the initial and repetitive visual inspections, the FAA proposed to require the replacement of the stationary oil seal, part number (P/N) B1316-00453 or P/N B1316-01274, installed at the No. 1 forward bearing. The FAA is issuing this AD to address the unsafe condition on these products.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from four commenters. The commenters were the Air Line Pilots Association, International (ALPA), GE, Helvetic Airways AG (Helvetic Airways), and JetBlue Airways (JetBlue). The following presents the comments received on the NPRM and the FAA's response to each comment.

Request to Change the Applicability

GE, Helvetic Airways, and JetBlue requested that the FAA change paragraph (c), Applicability, of this AD to align with GE CF34-10E Service Bulletin (SB) 72-0365 R04, dated April 27, 2021 (GE CF34-10E SB 72-0365 R04). GE specifically requested that the FAA include language that specifies the timeframe (after September 2014) to identify which stationary oil seals have adhesive EA9658 and are subject to the disbonding failure mode. GE and JetBlue noted that paragraph (c), Applicability, of the NPRM differs from GE CF34-10E SB 72-0365 R04, as it does not identify stationary oil seal, P/N B1316-00453 or P/N B1316-01274, replaced or repaired after September 2014, which is when the EA9658 adhesive was introduced to the field. GE and JetBlue commented that the NPRM, as written, would apply to all stationary oil seals, regardless of when they were manufactured or repaired. Helvetic Airways noted that paragraph (c), Applicability, of the NPRM does not account for the population of affected stationary oil seals, as identified in paragraph A., Effectivity, of GE CF34-10E SB 72-0365 R04.

In response to these comments, the FAA updated paragraph (c), Applicability, of this AD to specify this AD applies to GE CF34-10E model turbofan engines with a stationary oil seal, P/N B1316-00453 or P/N B1316-01274, installed at the No. 1 forward bearing, that has been repaired, overhauled, or entered into service after August 2014,

and used HTS oil or HPC oil for 56 flight hours or more during the life of the stationary oil seal.

Request to Clarify the Applicability by Engine Serial Number

GE suggested that the FAA revise paragraph (c), Applicability, of this AD to include the list of engine serial numbers (ESNs), 424714 through 424892, as an additional but alternate approach to identify affected CF34-10E engines.

The FAA notes that the list of ESNs includes those engines that were produced with the affected stationary oil seal. Those new-make engines are included in paragraph (c), Applicability, of this AD by referencing the stationary oil seal, P/N B1316-00453 or P/N B1316-01274, which entered service after August 2014. The FAA did not change this AD as a result of this comment.

Request to Update Compliance Time

GE requested that the FAA update paragraph (g)(1)(i) of the NPRM to remove “at the next engine shop visit.” GE reasoned that the intent of GE CF34-10E SB 72-0365 R04 is to perform the inspection on-wing without removing the engine.

In response to GE’s comment, the FAA has removed “at the next engine shop visit” and combined paragraphs (g)(1)(i) and (ii) of the NPRM into one paragraph, (g)(1) of this AD, to eliminate reference to an engine shop visit.

Request to Update Definition

GE requested that the FAA update paragraph (i), Definition, of this AD to indicate that a part eligible for installation is a stationary oil seal with a P/N other than P/N B1316-00453 or P/N B1316-001274 and with FM57 adhesive. GE reasoned that there could be room for interpretation as to what P/N other than B1316-00453 and P/N B1316-01274 could be in the future, especially if the manufacturer redesigns the stationary oil seal with a new adhesive and a new failure mode is introduced.

The FAA disagrees with updating the definition of a part eligible for installation in paragraph (i) of this AD to include a reference to FM57 adhesive. The FAA cannot define a part eligible for installation based on future redesigns by the manufacturer. The FAA may consider future rulemaking if a new failure mode is discovered. The FAA did not change this AD as a result of this comment.

Request to Update Service Information or Allow for Credit

GE requested that the FAA revise paragraph (g)(1) of this AD to reference GE CF34-10E SB 72-0365 R04, R03, and R02. GE commented that paragraph (g)(1) of the NPRM references GE CF34-10E SB 72-0365 R04 to comply with the AD; however, some operators may have complied with earlier revisions of the service bulletin. GE reasoned that paragraph 3.A.(1)(d) of GE CF34-10E SB 72-0365 R04, R03, R02 are identical.

JetBlue requested that the FAA update this AD to allow credit for inspections performed using previous revisions of GE CF34-10E SB 72-0365. JetBlue commented that the NPRM specifically references GE CF34-10E SB 72-0365 R04. JetBlue reasoned that, in addition to R04 of GE CF34-10E SB 72-0365, they performed repetitive inspections in accordance with R03 and R02.

This AD does not mandate that operators use GE CF34-10E SB 72-0365 R04 to perform the visual inspections. GE CF34-10E SB 72-0365 R04 is referenced in paragraph (g), Required Actions, of this AD as guidance to perform the visual inspections of the strainer assembly screen. Therefore, if operators used earlier versions of the service information to perform the visual inspections, they would be in compliance with the requirements in paragraph (g) of this AD. Regarding the comment requesting that this AD include credit for previous actions using earlier versions of the service information, the FAA notes that this change is unnecessary. Paragraph (f) of this AD mandates compliance with the required actions, unless already done. The FAA did not change this AD as a result of this comment.

Support for the AD

ALPA expressed support for the AD as written.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, and any other changes described previously, this AD is adopted as

proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Related Service Information under 1 CFR Part 51

The FAA reviewed GE CF34-10E Service Bulletin 72-0365 R04, dated April 27, 2021. This service information specifies procedures for performing a visual inspection and a borescope inspection of the strainer assembly for Teflon particles. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 46 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Inspect the strainer assembly screen	1 work-hour x \$85 per hour = \$85	\$0	\$85	\$3,910
Replace the stationary oil seal	2 work-hours x \$85 per hour = \$170	\$8,628	\$8,798	\$404,708

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2022-05-08 General Electric Company: Amendment 39-21959; Docket No. FAA-2021-0699; Project Identifier AD-2020-01685-E.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to General Electric Company (GE) CF34-10E2A1, CF34-10E5, CF34-10E5A1, CF34-10E6, CF34-10E6A1, CF34-10E7, and CF34-10E7-B model turbofan engines with a stationary oil seal, part number (P/N) B1316-00453 or P/N B1316-01274, installed at the No. 1 forward bearing, that:

- (1) Has been repaired, overhauled, or entered into service after August 2014; and
- (2) Has used high thermal stability oil or high performance capability oil for 56 flight hours (FHs) or more during the life of the stationary oil seal.

(d) Subject

Joint Aircraft System Component (JASC) Code 7261, Turbine Engine Oil System.

(e) Unsafe Condition

This AD was prompted by investigation by the manufacturer that revealed Teflon material in the A-sump oil strainer (strainer assembly) screen after several reports of in-flight shutdowns and unscheduled engine removals. The FAA is issuing this AD to prevent failure of the stationary oil seal at the No. 1 forward bearing. The unsafe condition, if not addressed, could result in failure of the engine, in-flight shutdown, and loss of control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) Before the stationary oil seal accumulates 100 FHs after the effective date of this AD, or within 100 FHs of the stationary oil seal accumulating 2,250 FHs since new, whichever occurs later, perform an initial visual inspection of the strainer assembly screen for Teflon material. Guidance on performing the visual inspection of the strainer assembly screen can be found in the Accomplishment Instructions, paragraph 3.A.(1)(d), of GE CF34-10E Service Bulletin (SB) 72-0365 R04, dated April 27, 2021.

(2) Thereafter, within the following compliance times, repeat the visual inspection of the strainer assembly screen required by paragraph (g)(1) of this AD:

(i) For an affected stationary oil seal having accumulated 2,250 to 7,000 FHs since new at the time of the last inspection, repeat the visual inspection every 750 FHs.

(ii) For an affected stationary oil seal having accumulated 7,001 to 10,000 FHs since new at the time of the last inspection, repeat the visual inspection every 375 FHs.

(iii) For an affected stationary oil seal having accumulated more than 10,000 FHs since new at the time of the last inspection, repeat the visual inspection every 100 FHs.

(3) If, based on any inspection required by paragraph (g)(1) or (2) of this AD, Teflon material is found in the strainer assembly screen, before further flight, remove the stationary oil seal at the No. 1 forward bearing from service and replace it with a part eligible for installation.

(4) Before an affected stationary oil seal accumulates 10,000 FHs since new or within 500 FHs after the effective date of this AD, whichever occurs later, remove the stationary oil seal at the No. 1 forward bearing from service and replace it with a part eligible for installation.

(h) Terminating Action

Removal of the stationary oil seal, P/N B1316-00453 or P/N B1316-01274, installed at the No. 1 forward bearing, and replacement with a part eligible for installation, constitutes terminating action for the initial and repetitive inspections required by paragraphs (g)(1) and (2) of this AD.

(i) Definition

For the purpose of this AD, a “part eligible for installation” is a stationary oil seal that has a P/N other than P/N B1316-00453 or P/N B1316-01274.

(j) Special Flight Permit

A special flight permit may be issued in accordance with 14 CFR 21.197 and 21.199 to permit a non-revenue ferry flight, consisting of no more than five cycles, to a location where the engine can be removed from service for operators who are prohibited from further flight due to Teflon material found in the strainer assembly screen if operators perform the actions in Appendix – A, paragraph 4.A., of GE CF34-10E SB 72-0365 R04, dated April 27, 2021, and the engine still meets the criteria in paragraph 4.A.

for flying an additional five cycles. This ferry flight must be performed with only essential flight crew, without passengers, and involve non-ETOPS operations.

(k) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (l) of this AD. You may email your request to ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(l) Related Information

For more information about this AD, contact Scott Stevenson, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7132; fax: (781) 238-7199; email: Scott.M.Stevenson@faa.gov.

(m) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) GE CF34-10E Service Bulletin 72-0365 R04, dated April 27, 2021.

(ii) [Reserved]

(3) For service information identified in this AD, contact General Electric Company, GE Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ge.com; website: <https://www.ge.com>.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: fr.inspection@nara.gov, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on February 18, 2022.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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